AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1.   (Original)   A method for estimating a system state that is applied in a network comprising a plurality of nodes, each node having means for receiving and sending information and means for processing information, and each node being connected to selected other nodes of the network, the method comprising, at each node:

(i)   maintaining a set of particles and associated weights, which represent an estimate of the system state,

(ii)   representing the estimated system state as a mixture of Gaussian distributions, and communicating said mixture to neighbouring nodes, and

(iii)   in response to receiving said mixture from a neighbouring node, updating the estimate of the system state that is maintained at the node by resampling the particles to provide new weights for each particle, wherein each new weight includes said mixture of Gaussian distributions received from a neighbouring node divided by said mixture of Gaussian distributions formed from the existing particle set in the node.

2.   (Canceled)

3.   (Currently Amended)   The [[A]] method according to claim 1, wherein each Gaussian distribution of said mixture is transmitted as signals representing the mean and covariance of the distribution.

4.   (Currently Amended)   The [[A]] method as claimed in claim 1, including providing channel filters at each port of each node, in which updated weights for each particle are determined.

5.   (Original)   A network for estimating a system state, the network comprising a plurality of nodes, each node having means for receiving and sending information and means for processing information, and each node being connected to selected other nodes of the network, each node including:

particle filter means for maintaining a set of particles and associated weights, which represent an estimate of the system state, and means for updating the set when new information is available,

means for representing the estimating system state as a mixture of Gaussian distributions, and means for communicating said mixture to neighbouring nodes,

said means for updating, being responsive to receiving said mixture from a neighbouring node, for updating its estimate of the system state by computing new weights for each particle using a resampling operation, wherein each new weight includes said mixture of Gaussian distributions communicated to the node divided by said mixture of Gaussian distributions representing the existing particle set at said node.

6.   (Currently Amended)   The [[A]] network as claimed in claim 5,

wherein a communication port of each node includes a channel filter.

7.   (Canceled)

8.   (Currently Amended)   The [[A]] network as claimed in claim 5,

wherein said means for communicating ~~is operative to transmit~~ transmits each

Gaussian distribution of said mixture as signals representing the mean and

covariance of the distribution.

9.   (Currently Amended)   The [[A]] network as claimed in claim 5,

wherein each node is a sensor for tracking aircraft.

10.-11.   (Cancelled)